

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (currently amended) An isolated ~~or recombinant nucleic acid~~ MEN1 gene encoding menin, wherein said ~~nucleic acid~~ MEN1 gene encodes a protein comprising an amino acid sequence ~~having at least 95% identity to~~ having the amino acid sequence of SEQ ID NO:2.

2. (cancelled)

3. (currently amended) The isolated ~~or recombinant nucleic acid~~ MEN1 gene encoding menin of claim 1, wherein the MEN1 gene sequence comprises the coding region of SEQ ID NO:1.

4. (currently amended) The isolated ~~or recombinant nucleic acid~~ MEN1 gene encoding menin of claim 1, wherein the MEN1 gene sequence comprises SEQ ID NO:3.

5.-23. (cancelled)

24. (currently amended) A kit for detecting in a test sample the presence or absence of a mutation in a MEN1 gene ~~comprising a nucleotide sequence encoding a menin polypeptide as set forth in SEQ ID NO:2~~ having the sequence of SEQ ID NO:3, the kit comprising;

- a) a container holding an first oligonucleotide sequence that discriminates between the wild type gene and the mutant form; binds to a target region of SEQ ID NO:3; and
- b) a container holding a reagent for detecting the formation of a duplex between the gene and the first nucleotide sequence.

25. (cancelled)

26. (currently amended) The kit of claim 24, further comprising amplification primer pairs specifically binding to a human ~~genomic DNA sequence encoding menin~~ MEN1 gene having the sequence of SEQ ID NO:3.

27.-29. (cancelled)

30. (currently amended) A transfected cell *in vitro*, wherein the cell comprises a ~~heterologous~~ nucleic acid of claim 1.

31. (cancelled)

32. (currently amended) The transfected cell of claim 30, wherein the ~~heterologous~~ nucleic acid comprises a nucleic acid as set forth in SEQ ID NO:1 or SEQ ID NO:3.

33. (previously presented) The transfected cell of claim 30, wherein the cell is a human cell.

34. (withdrawn) An organism into which an exogenous nucleic acid sequence has been introduced, the exogenous nucleic acid specifically hybridizing under stringent conditions to a nucleic acid with:

a sequence as set forth in SEQ ID NO:1; or,

a nucleic acid encoding a protein defined as having a calculated molecular weight of about 67.5 kDa; and (a) specifically binding to an antibody raised against a protein with a sequence as set forth in SEQ ID NO:2; or (b) having at least 60% amino acid sequence identity to a protein with a sequence as set forth in SEQ ID NO:2; and,

the organism expresses the exogenous nucleic acid as a menin protein.

35. (withdrawn) The organism of claim 34, wherein the exogenous nucleic acid comprises the nucleic acid as set forth in SEQ ID NO:1 or SEQ ID NO:3.

36. (previously presented) An expression cassette comprising a nucleic acid of claim 1, wherein the nucleic acid is operably linked to a promoter.

37. (original) The expression cassette of claim 36, further comprising an expression vector.

38.-42. (cancelled)

43. (new) A method for detecting the presence or absence of a mutation in a target region of SEQ ID NO:3 in a nucleic acid sample, the method comprising:

- a) contacting the nucleic acid sample with an oligonucleotide probe to the target region of SEQ ID NO:3; and,
- b) detecting the formation of a duplex between the gene and the oligonucleotide.

44. (new) The method of claim 43, wherein the target region SEQ ID NO:3 comprises an exon of SEQ ID NO:3.

45. (new) A method for detecting the presence or absence of a mutation in a target region of SEQ ID NO:3 in a nucleic acid sample, the method comprising:

- incubating the nucleic acid sample in an amplification reaction comprising primers that amplify the target region of SEQ ID NO:3;
- contacting the amplified product with an oligonucleotide probe to the amplified region of SEQ ID NO:3; and,
- detecting the formation of a duplex between the amplified product and the oligonucleotide probe.

46. (new) The method of claim 45, wherein the amplified region comprises an exon of SEQ ID NO:3.

47. (new) A method for detecting the presence or absence of a mutation in a target region of SEQ ID NO:3 in a nucleic acid sample, the method comprising:

incubating the nucleic acid sample from the individual in an amplification reaction comprising primers that amplify a target region of SEQ ID NO:3; and  
determining the sequence of the target region.